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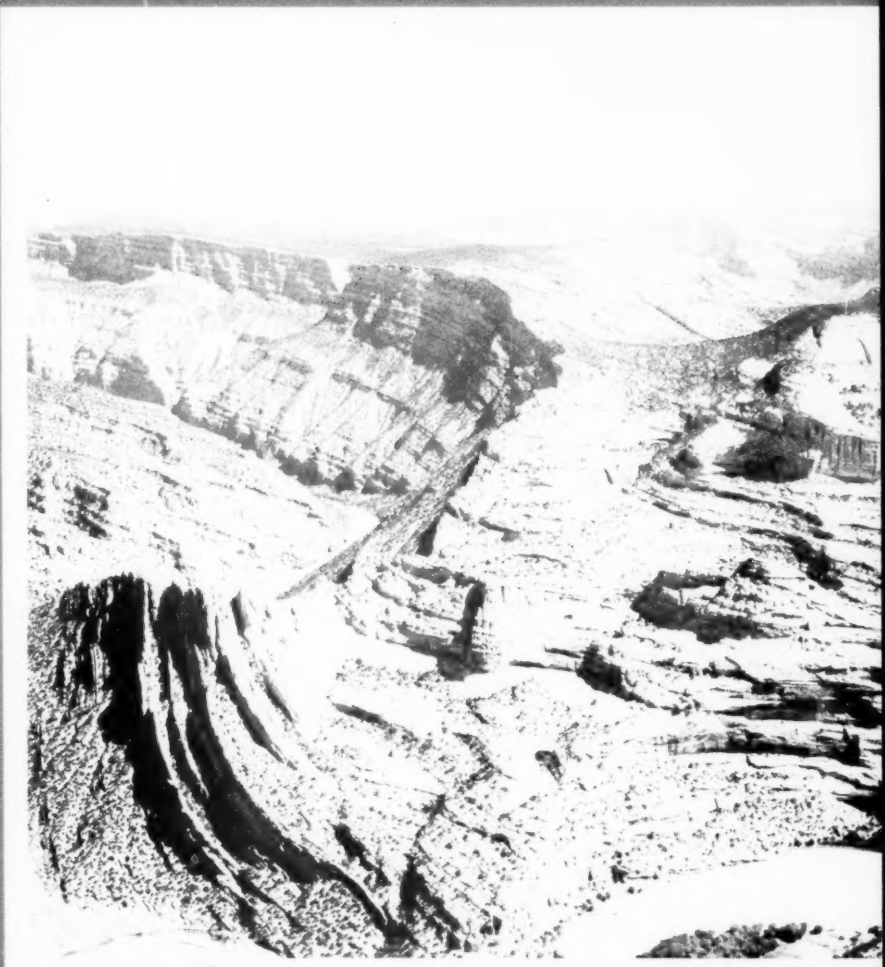


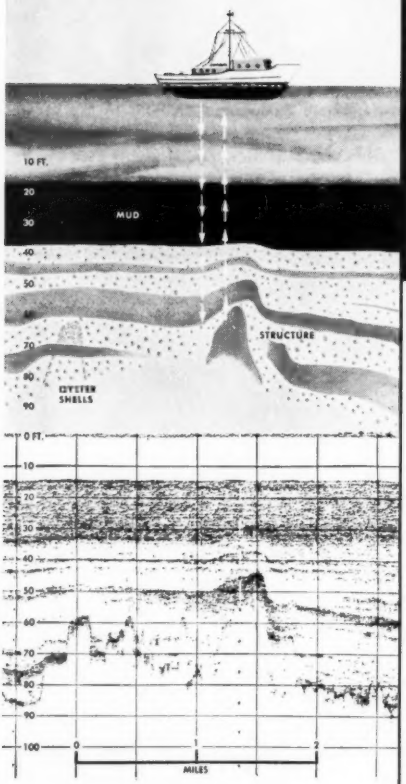
COORDINATION – COOPERATION · SERVICE · GAI

January 1957

Volume 1, No. 7

Published Monthly by the
American Geological Institute

ANNOUNCING... A MAJOR NEW GEOPHYSICAL ADVANCE



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Calendar

Cooperation of Society Secretaries in supplying meeting notices for GEOTIMES calender is requested.

Jan. 14-16, 1957—COUNCIL OF ENGINEERING SOCIETY SECRETARIES annual meeting, Statler Hotel, New York City.

Jan. 14-26, 1957—WORLD METEOROLOGICAL ORGANIZATION, 2nd Session of the Commission for Climatology, Washington, D. C.

Jan. 17-18, 1957—ENGINEERS JOINT COUNCIL, third General Assembly, Statler Hotel, New York City.

Feb. 24-28, 1957—A.I.M.E., Annual Meeting, Hotels Roosevelt and Jung, New Orleans, La.

February 25-27, 1957—AAPG, Rocky Mt. Sect., 7th Annual Meeting, Salt Lake City, Utah.

Mar. 3-9, 1957—ASP - ACSM Consec. mtgs., and co-exhibit, Shoreham Hotel, Washington, D.C.

Mar. 4-8, 1957—PITTSBURGH CONF. ON ANALYTICAL Chemistry and Applied Spectroscopy, Pittsburgh, Pa.

Mar. 10-16, 1957—SECOND NUCLEAR ENGINEERING & SCIENCE CONGRESS, sponsored by EJC, AGI participating. Convention Hall, Phila., Pa.

Mar. 19-21, 1957—AMER. METEOROLOGICAL SOC., 151st Nat. Mtg., Univ. of Chicago, Chicago, Ill.

April 1-4, 1957—A.A.P.G., National Convention, Kiel Auditorium, St. Louis, Mo.

April 5, 6, 1957—PACIFIC SOUTHWEST MINERAL INDUSTRY CONF., sponsored by Nevada, San Francisco & So. Cal. Secs. of A.I.M.E., Reno, Nev.

April 19-20, 1957—G.S.A., Cordilleran Sec., ann. mtg.; P.C. Br. of P.S. & the S.S.A. also meet at UCLA, Los Angeles, Calif.

April 29-May 1, 1957—AMERICAN GEOPHYSICAL UNION, 38th Annual Meeting, Washington, D. C.

May 5-9, 1957—AMERICAN CERAMIC SOCIETY, 59th Ann. Mtg., Statler Hilton Hotel, Dallas, Tex.

May 7, 1957 — INTERNATIONAL HYDROGRAPHIC CONF., Seventh Congress, Monte Carlo, Monaco.

May 10-11, 1957—G.S.A., ROCKY MTN. SECT., 10th Annual Meeting, Logan, Utah. For information write to Sec'y. of the Sect., Gordon S. Wise, P.O. Box 58, Salt Lake City.

May 16-18, 1957 — G.S.A., SOUTHEASTERN SECTION, Morgantown, W. Va.

1957-58 — INTERNATIONAL GEOPHYSICAL YR.

July 10-19 — INTERNATIONAL UNION OF CRYSTALLOGRAPHY, 4th General Assembly & International Congress. McGill Univ., Montreal, Quebec.

August, 1957—INTERNAT. ASSOC. OF SEISMOLOGY & Physics of the Earth's Interior, Toronto, Ont.

August, 1957—INTERNATIONAL ASSOC. OF PHYSICAL OCEANOGRAPHY, General Assembly, Canada.

Sept. 9-10, 1957—AMER. CERAMIC SOC., Basic Science Div., State U. of N.Y. Coll. of Ceramics, Alfred Univ., Alfred, N.Y.

Oct. 14-18, 1957—Internat. Industrial Development Conference, sponsored by Time-Life International & SRI, Fairmont Hotel, San Francisco, Calif. Attendance by personal invitation.

1960—XXIst INTERNATIONAL GEOLOGICAL CONGRESS, Copenhagen, Denmark. Field excursions to Scandinavian countries.

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This Month in GeoTimes

Successor to the Geological Newsletter

Published by **THE AMERICAN GEOLOGICAL INSTITUTE**

Robert C. Stephenson, EDITOR

Kathryn Lohman, CIRCULATION MANAGER

Vol. I, No. 7 January 1957

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Be It Resolved

The start of each New Year brings the usual crop of expressions of good intent to mend our ways. We here do not propose to encourage your giving up smoking, drinking, indoor bird-watching or other minor vices. We are concerned with the geoscientists professionally — and we assume that these habits are not interfering with the pursuit of professional goals.

Our interests are in the profession and the individuals within the profession. With the start of 1957 it is an excellent time to evaluate our position and to make some professional resolutions. As cited elsewhere in this issue, the geologists and geophysicists fare well financially in comparison with scientists as a whole. Most of us have undoubtedly already resolved to improve our professional earnings in 1957, but have we made any resolutions to contribute time, energy, interest, moral or even financial support to the improvement of our profession?

Twenty thousand geoscientists, contributing 1 hour per week, could generate 125,000 man days of effort per year dedicated to advancing the profession. If we could afford only 1¢ from each $10 of professional income earned we would come up with about $150,000 annually to support professional projects.

We as individuals have derived much from our profession, both in professional satisfaction and pecuniary rewards, but are we plowing anything back into our profession to enhance its capabilities, potentialities and stature? Where can we serve? As a profession, we can all pitch in on the problem of public education, we can all find a spot to support the scouting program, we can all participate in career guidance efforts,, we can all assume responsibility in aiding students in the earth sciences, and we can all join to promote the increase of research efforts in the geological sciences.

Your resolution to plow something back into your profession in 1957, if multiplied by our strength of 20,000, can produce a formidable driving force.

OUR COVER

Drag fold on Mitten Park fault near Steamboat Rock, Dinosaur National Monument, Colo.-Utah. Photo by courtesy of National Park Service.

The AMERICAN GEOLOGICAL INSTITUTE is a non-profit professional service organization established and managed by the scientific societies in the fields of geology and geophysics in cooperation with the National Academy of Sciences-National Research Council. It is the instrument of the profession serving and advancing the welfare of the geoscientist in matters relating to education, professional responsibilities and government relations. It is an active member of the Scientific Manpower Commission. It also functions in the stimulation of public education and awareness of the earth sciences, through career literature, the scouting program and other channels of communication.

GEOTIMES is the news magazine of the geological sciences. It reports on current events in the earth sciences, public education and public relations efforts throughout the profession, as well as appropriate legislative and governmental issues. It announces scholarships, fellowships, publications and new developments. It provides a forum for discussion of timely professional problems, and affords a common bond between the many specialized groups within the earth sciences.

The NATIONAL ACADEMY and the AGI

by

S. D. CORNELL, Executive Officer, NAS-NRC

The American Geological Institute is unique among the federations of scientific societies in that it operates under the aegis of the National Academy of Sciences — National Research Council. The geological scientists recognized the need of a coordinating service organization a number of years before the AGI was actually founded, but had not found a satisfactory common ground for an organization that would provide representation for all segments of the profession. Dr. Detlev Bronk, President of the Academy-Research Council, expressed the interest of the Academy in fostering such an organization to meet the needs of scientists and to counter fragmentation of the sciences. The geological scientists saw in this a solution to their problem. In 1948 eleven scientific and technical societies in the field of the earth sciences joined under sponsorship of the NAS-NRC to found the American Geological Institute. If we reflect briefly on the history of the Academy-Research Council we will see clearly the logic of the affiliation of the American Geological Institute with the Academy.

Almost one hundred years ago two far-reaching scientific needs of the United States were foremost in the minds of a number of leading American scientists. One was the need for a national organization of scientists to further the growth of science in the expanding nation, the other, the need of an apparatus by which the most competent advice in scientific matters could be provided to the Federal Government.

There was nothing new about the first of these needs. From the beginning of the Republic it had been recognized by statesmen of scientific vision, including Washington and several of his successors, who advocated in one form or another a national university or other mechanism to foster the healthy evolution of science for the public welfare. The second need was becoming increasingly evident in the 1860's because of the exigencies of war combined with the emergence of technological innovations such as iron ships and steam propulsion.

Founded in 1863

Out of these needs the National Academy of Sciences was born. Proposed by a group of prominent scientists of the day, the Academy was formally established by Act of Congress in 1863 as a wholly independent, non-governmental agency to further science and to advise the Government in scientific and technical matters.

These two purposes have orientated and informed the actions of the Academy for more than ninety years. They have motivated countless meetings, investigations, and reports, a number of which have had extraordinary significance for the course of scientific developments in the United States. They underlay the Academy's decision in 1916 to form the National Research Council as an instrument of the Academy through which scientists generally, and the various specialized societies of science and engineering, could associate their efforts with those of the Academy in pursuit of its two great purposes. Taken as a wartime preparedness measure, this step was perpetuated in 1918 with the support of an Executive Order from President Wilson recognizing the aims of the move to establish the Research Council and insuring Government cooperation through scientific representation from Government bureaus and laboratories when desired by the Academy.

Thus for forty years the Academy-Research Council has based its activities broadly in the whole fabric of American science. Working constantly with and through the scientists of America, enjoying close and cordial but independent relations with Government, it has carried forward a host of undertakings covering a vast range in character, scope, and field,

all related to the purposes laid down more than ninety years ago.

Today, for a number of reasons, the need for such an organization of science and scientists is greater than ever. Two fundamental trends can be cited.

Counters Fragmentation

First, the enormous growth of science has led inexorably to a fragmentation of its substance and a specialization of its practitioners. As problems and knowledge grow, as tools are refined and elaborated, the intensive cultivation of narrow areas of science is inevitably encouraged. That this is inherently the enemy of a wide view and a broad understanding does not mean that we should eschew it or deplore it, but only that we must seek increasingly the most effective means, whether of organization or of education, to preserve the intellectual integrity of science as a whole. The specialized organizations of science have multiplied many fold in this century, and this very fact has served to emphasize the growing diversity of science and, often, to hide its enduring unity.

Second, our scientific achievements coupled with our social and political problems have brought us to the point where science has a crucial bearing on the national interest and the public welfare that was quite undreamed of by the great body of scientists ninety — or even twenty — years ago. A wholly new responsibility falls upon scientists — both as scientists and as citizens — to increase public understanding of science and its implications for humanity and to work for the growth and use of science with full devotion to the highest moral principles on which, whether we always remember it or not, a free and responsible civilization ultimately and inescapably depends.

Against the background of these changes a constant aim of the Academy-Research Council has been to foster cross-fertilization by the exchange of ideas among scientific disciplines and to provide an effective forum for concerted thought and action on the broadest problems of science through the joining of efforts of those traveling its far-flung highways and byways.

AGI Born

Therefore it was natural for the Academy-Research Council to welcome the initiative of those who seven or eight years ago proposed an association of societies in the geological sciences, and to offer with satisfaction its assistance and facilities for the establishment of the resulting American Geological Institute. Here were individuals convinced that, in the area of their interests, the time was ripe to launch a new mechanism for cooperative action. This course, already tried successfully in other scientific disciplines, held promise of significant benefits for science and scientists that could not be realized so effectively by their efforts as individuals or by their individual societies acting separately. Recognizing the breadth of the "science of the earth" and the community of interest among its various specialized societies, the geological scientists formed an Institute where those societies could associate their efforts for "the advancement of geology and its application to human welfare."

Eight Years Old

In that form and with that purpose the American Geological Institute has now passed its eighth birthday. The present author, not an earth scientist, cannot speak from inside that field in appraising the achievements of the AGI. But he can say with authority that the Institute has, in the course of eight eventful years, won for itself a place of esteem and respect in the structure of the Academy-Research Council. With all the expected pains of a new piece of machinery for bringing human beings and their institutions closer together, groping for a rationale and a metier, for a solid financial base and a specific and challenging course of action,

Continued on page 12

DeGolyer Dies

Geologists everywhere mourn the death on December 14 of Everett L. DeGolyer, Dean of the Petroleum Geologists and senior member of the firm, DeGolyer and MacNaughton of Dallas, Texas. Born in Greensburg, Kansas in 1886 DeGolyer achieved early recognition in the oil industry by staking in 1910 the famous Mexican Petero No. 4 well which came in for 100,000 barrels of oil per day. This he accomplished even before completing his geologic studies at the University of Oklahoma. Later he played a prominent role in the formation of the Amerada Petroleum Corporation and still later Geophysical Services, Inc. As an outstanding student of petroleum geology he made many contributions to the science and techniques of oil-finding which gained for him a respected world-wide reputation. Honors bestowed on him were legion. He was well known in the literary world, for he was a principal owner and chairman of the Board of The Saturday Review of Literature.

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RESEARCH

by

G. M. KNEBEL, Past-President AAPG

The November, 1956 issue of GEOTIMES carried on page 12 a brief note on American Association of Petroleum Geologists Research Grants. Even though these grants were small, they are significant because they herald a renewal of activities and a new chapter in the life of one of the oldest committees of the A.A.P.G.

This Research Committee was created by the A.A.P.G. Executive Committee on March 30, 1923. W. E. Wrather was selected as chairman with Max W. Ball, Carl H. Beal, E. L. DeGolyer, James H. Gardner, G. C. Gester, Wallace E. Pratt, W. van der Gracht and Chester W. Washburne constituting the rest of the Committee. This Committee was charged with: 1) The outlining of definite research problems in petroleum geology to be financed by the Association. 2) The recommending of similar research projects to other organizations such as the American Petroleum Institute, National Research Council, Geological Society of America, et al., 3) The assembling of papers suitable for a symposium at the Annual Meeting, and 4) The analyses of the data presented at the symposium. On May 23, 1930, the Research Fund Trusteeship was created by the Executive Committee of the Association.

The Research Committee has accomplished a great deal during its 33 years of existance. During this time it has worked variously with the National Research Council, the American Petroleum Institute, the Geological Society of America, different schools and universities, state and government geological surveys and any scientific agency or foundation concerned with the development of the of the science of petroleum. However, it has always been handicapped by lack of funds. During 1955, the Executive Committee agreed to a more active fund-raising campaign. On September 1, 1955, legal steps were taken to establish the Research Fund as a non-profit trust by drawing up a Declaration of Trust and Agreement between the A.A.P.G. and the Trustees of the Research Fund. Also, a note soliciting funds accompanied the annual dues notice in October, 1955, and, by January 1, 1956, as a result of this request, 1549 people and local societies had contributed $8,079.50. This, together with the $6,115.97 surplus from the New York convention, brought the Research Fund to a total of $29,304.42. During 1956, contributions have totaled approximately $12,000 and grants $4,300, giving the A.A.P.G. Research Fund a total of about $37,000 at the present time.

A $1000 Club has been established and already seven persons and societies have joined, and others have promised to join before the year ends.

Mr. Dana Russell is now chairman of the very vigorous A.A.P.G. Research Committee. He and his committee have already made twelve grants-in-aid and others are contemplated for 1957. Peter Flawn, of the Bureau of Economic Geologists at Austin, Texas, has agreed to act as chairman of a sub-committee to work up a basement map of the United States.

Also, at the moment, Dana Russell is having his committee survey the field to determine the research needs in petroleum geology. As a result of this study, it is hoped that a revised outline of needed, important research will be forthcoming. This subject and new grants will be discussed by the Research Committee at the St. Louis convention on Sunday, March 31, 1957. Surely more money will be needed to handle some of the new projects.

The current Executive Committee of the A.A.P.G. agreed to let the writer continue his efforts to raise research funds. A committee has been established and is now soliciting large donations through personal contact. Again this year, the annual dues notice had space for a contribution to research. The purpose of this is to encourage many members to give annually to research even though the amount is small.

Our research needs are great — let's not leave everything to our company or the government. This is an opportunity for you, individually, to contribute to progress. Collectively, we can do wonders — look up that dues notice and send in a contribution or contact your local society to learn the name of the committee man on the Voluntary Research Fund Campaign Committee.

OCTOBER 1957 is GEOLOGY MONTH for Boy Scouts of America

More than four million men and boys will have an opportunity to get acquainted with geology next Fall because October 1957 has been designated Geology Month by the Boy Scouts of America. A program of activity that is being prepared by the coordinated AGI and AAPG Boy Scout Committees, will be outlined in the official Program Quarterly of the BSA that will be distributed late next Summer. The outline is to be supplemented by a kit that will describe various activities for Scout troops and Explorer units to use as a guide for the month's activity. This kit will be produced and distributed to the 68,000 Scout and Explorer units throughout the country in cooperation with and with the financial assistance of the American Petroleum Institute. When available, copies of the kit may be obtained by geologists at local council offices.

It is planned to emphasize both indoor and outdoor activities. Field trips are to be organized on a troop or council basis, depending upon local conditions or upon the availability of a geologist to lead these groups. Directions are included for collecting, labelling, and displaying various kinds of geological materials. Ways will be suggested for constructing many kinds of models and displays, and for conducting games and contests.

A "Tradin' Post" will be set up through which troops favorably situated for collecting can trade their unusual specimens with other troops over the country. Those scouts having tradin' material will send a card and a stamped envelope to BSA headquarters and will receive in return a list of all troops in the country with things to trade. The actual trading is to be done directly between troops; the cards will be found in the kit. It is probable that this activity will continue long after the end of October 1957. Competition can be injected in this part of the program by offering prizes for the best collections and models built in the council.

Directions will be given for procuring movies and film strips on geological subjects. A bibliography of popular reading in geology also will be included.

The climax of the program is to be found in the good turn for the month, for it is proposed that the prize-winning displays will be presented to science departments of the high schools and junior high schools in the council area. In many places these schools now have no geological materials available for use by their science classes.

Here is where you can fit into the picture. This job is big and work is already under way on the preparation of the kit. You can help by contributing information on craft projects, games and other geologically oriented activities. You—with the flair for writing—can spin a geologic yarn based on fact or fiction for the October issues of Boys Life or Scouting. The deadline is tough—February 1957. Later on you can serve by participating at the council and troop level.

Channel your suggestions and volunteer aid to CHALMER COOPER, U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.

New AGI Affiliate

The request of the Colorado Scientific Society for affiliation with the American Geological Institute was approved unanimously by the Board of Directors of the Institute at its last meeting.

The Colorado Scientific Society was founded in 1882 when S. F. Emmons, geologist in charge of the Rocky Mountain Division of the newly organized U. S. Geological Survey, enlisted the interest of others in forming the society. For many years it was the only scientific or professional society in the area. The Colorado Scientific Society, as the name implies, is not an organization devoted solely to the earth sciences. It embraces all scientific and engineering disciplines. Men interested in the geological sciences, mining, and more recently, petroleum, have played prominent roles in the activities of the Society. The American Geological Institute is proud to add the Colorado Scientific Society to its rolls as an affiliate member.

Any non-profit scientific or professional organization of local, regional or national scope that is concerned with the geological sciences may request consideration for affiliate membership in the AGI.

Manpower Report Measures Earth Scientists

NSF Register Provides Professional Yardstick

You hate questionnaires, I hate questionnaires, we all hate questionnaires—but, let's face it, we like to examine and use results that can be tabulated from questionnaires. So it was with the questionnaires that were sent to the scientists of our nation during 1954-55 for the National Register of Scientific and Technical Personnel, conducted by professional societies working in cooperation with the National Science Foundation.

The NSF has just released an interesting report, Scientific Manpower Bulletin No. 7, "Employment Profile of Scientists in the National Register of Scientific and Technical Personnel, 1954-55." More than 94,000 U. S. scientists cooperated by filling out, to use the average scientists words, "that * ? * ! * ? ! ! government questionnaire!" These 94,000 questionnaires supplied data on employment, education, income, age, scientific specialties and other information which has provided data for the above-mentioned report. The statistics gleaned from these data are far from conclusive, since only about 50% of our estimated scientific population complied. However, some interesting comparisons and observations can be made.

The American Geological Institute was designated the official gathering agency for the Earth Sciences. About 17,000 questionnaires were mailed and, at the cut-off date for the NSF compilation, 11,800 geologists-geophysicists had responded. Subsequently the AGI received 4,000 additional 1954-55 questionnaires. The AGI's batting average on returns was higher than that of any other collecting agency because the former AGI Executive Director devised a most effective gimmick. He was just starting the Geological Newsletter in its new format and he stipulated that to get on the Newsletter mailing list a geologist had to return a questionnaire.

So much for background—let's take a look at the findings. We are all interested in money, so let's start with money. The median salary of all scientists in the 1954-55 Register was $6,525. The median salary for geologists $7,250, exceeded only by the $7,275 of the physicists. The median salary of Ph.D.'s was $7,000, whereas the Ph.D. geoscientists had a median salary of $7,675 and were exceeded by physicists and meteorologists both with $7,800 medians. Geologists-geophysicists led the field in the $25,000 and over salary bracket. We must remember, these data are nearly three years old; results of the 1956 questionnaire are not yet tabulated.

Despite the fact that the geoscientists stood high in the salary bracket they were conspicuously low in the pencentage of the total attaining Ph.D. level of education. Of all scientists in the Register, 41% possessed the Ph.D. degree while the percentage of geoscientists was 16.6. At the Master's level the geological scientists reported 24.5% as compared to 25.1%.

The median age of the geologists-geophysicists was 38, while half of the profession was in the 25-40 age bracket. Twenty-four percent of the profession was in the 30-34 age bracket. The geological sciences had 1.9% women scientists as compared to 7.3% for the Register as a whole.

We believe that information such as is developed by the Register is vital to measure our over-all scientific and technical strength and it is important to geologists as a yard stick for their own professional development.

If you have not returned that 1956 Register Questionnaire which was mailed to you last Spring—and we know of a few who have not—dig it, fill it out, and mail it to AGI, so we can add another unit or two to our professional tape measure.

Copies of NSF Report 7, "Employment Profile of Scientists in the National Register of Scientific and Technical Personnel, 1954-55," may be obtained without charge upon request from the American Geological Institute, 2101 Constitution Ave., N. W., Washington, D. C.

New York State Exam

Nation-wide examination for Senior Curator (Geology) will be held on Feb. 16, 1957 by the New York State Dept. of Civil Service for College graduates who specialized in geology and who have in addition either two years of graduate study in geology or two years of curatorial, research, or teaching experience in geology. Salary $4,880 to $6,030. For further information write to the Recruitment Unit, Box A, Dept. of Civil Service, 39 Columbia Street, Albany, N. Y.

INQUA

Quaternary Scientists of World Meet in Spain September 1957

The 5th Congress of INQUA will convene in Madrid, September 20, 1957. Abstracts of technical papers to be presented during the eight day scientific sessions must be filed prior to February 1, 1957.

Papers on geological, geophysical and anthropologic topics relating to the Quaternary will be presented in the technical sessions. The following commissions will meet: (1) for the study of coast lines, (2) for the dictionary of terms used in Quaternary geology, (3) for the cataloguing and correlation of the Pleistocene, (4) on Recent tectonics and (5) for the geological map of the Pleistocene of Western Europe. A conference on carbon-14 research will be held.

Pre-Congress excursions will be made to the Pyrenees and to the Cantabrian Region. Short trips to the Gredos Mtns. and the Manzanares Valley will be conducted during the Madrid Congress. Following the Congress an excursion will be conducted from Madrid to Barcelona via Alicante, Valencia and Mallorca.

Information on the 5th International Congress of INQUA may be obtained by writing L. Sole Sabaris, Instituto Geologico, Universidad Barcelona (Spain).

Mt. Juhle

A mountain peak in Katmai National Monument in Alaska was recently named Mount Juhle in memory of Rolf Werner Juhle, a young U. S. Geological Survey geologist who vanished without trace near the end of his first field season in Alaska in 1953. His outstanding record as a graduate student in geology was related in a feature story in the Johns Hopkins Magazine, November 1956. The youthful geologist joins other geologists of by-gone years such as Holmes (Henry Mts.) and Brooks (Alaska) after whom peaks have been named.

One Hundred For AGI

Dr. E. A. Eckhardt, Chairman of the AGI Finance Committee, reports that letters have gone out to more than 500 geologist-geophysicists inviting them to join the Committee of 100 for AGI. In February, we will report on the growing membership of this committee.

GEOLOGY in the Public Eye

by Bob Bates

We start the brave new year with a brave new gripe. It is your correspondent's belief that most of the geological highway markers that have been erected so far are not worth the plywood they're painted on. Reason: they inform the geologist, not the layman.

Suppose you, a shoe-store proprietor from Sinus Center, Illinois, are driving with your family down the Wind River Canyon on vacation. You can get a little something about the scenery from the Boysen Dam turn-out, and a little more from the Highway Dept. sign at the canyon's mouth. But in between? Neatly lettered signs proclaim "Bighorn", "Madison", "Phosphoria". Isn't that dandy? To you they might be soft-drink or tourist-court ads.

US Highway 30S in Utah goes past the famous Devil's Slide, and the State Road Commission has erected a stone monument and bronze marker. According to the latter, "Devil's Slide is a good illustration of erosion in rocks that have been strongly folded." This is fine for you and me, but no one has told the layman that rocks can fold, and unfortunately there aren't any folds in sight anyhow. "The rocks were formed in a Jurassic sea about 100 million years ago." Jurassic is a meaningless term to the unitiated, and 100 million years is meaningless to anybody. Were the rocks formed as is? No, "strong compressive forces folded and uplifted the rock layers." It is all very well to say that any knucklehead can follow this deposited-uplifted-folded-eroded sequence; any geological knucklehead can. But how can we expect the layman to grasp such a grand succession of events in five minutes when these events are described in pure geologese?

The geologist who prepares highway markers should pay no attention to what his professional colleagues are going to think of his efforts; should put himself in the place of the shoestore man with nothing to offer but a perfectly reasonable curiosity; should have, in short, the ability to be clear and the courage to be simple-minded.

MANPOWER *in a column —*

By HOWARD A. MEYERHOFF
Scientific Manpower Commission

The U. S. Office of Education is late this fall in compiling its statistics on degrees granted in academic year 1955-56. This is bad, especially in science and engineering, for almost everyone wants to know how we are doing. Only yesterday we obtained preliminary figures on engineering. They are up from last year, but they fall 3,500 short of official predictions. To some extent, as engineering goes, so go the physical sciences.

The prediction was 30,000 engineering graduates in 1956. There were only 26,306. In 1954-55 the number of bachelors degrees granted was 22,589. There was no appreciable change in the number of masters—4,724 in 1956 compared with 4,484 in 1955—or of doctors of engineering—610 in 1956, 599 in 1955.

Hope springs eternal in the managerial breast that demand will slacken as the number of graduates rises, but current estimates reveal continuing divergence of the demand and supply curves. The National Science Foundation has ventured a forecast based upon a projection of the Gross National Product. The forecast shows an annual deficit of 7,800 engineers in the five-year period 1955-60, but the Engineering Manpower Commission's Executive Committee is convinced that 17,800 would be a more realistic figure.

The increasing enrollments in our schools of engineering offer little basis for optimism. In September 1955 there were 72,825 freshmen registered in the engineering schools of the country. This past September there were 77,000. With a mortality rate of 43 percent this means only 41,500 graduates in 1959 and 44,000 in 1960. In that year, there will be approximately 65,000 jobs available, about 12 to 15 thousand of which might be filled by upgrading men with experience but without degrees.

What all this means to the earth scientists is problematical. In engineering, the field is doing poorly—it is not sharing in the improvement that has taken place in other fields. Ceramic engineering graduated 86 bachelors in 1955 against an estimated need of 325. There were only 449 metallurgical engineers, 204 in mining, 467 in petroleum, 182 in geological engineering, and 25 in geophysical. Add another 1,800 geologists and geophysicists, and the total new brainpower in the earth science field is 3,200. Allowing 10 percent for attrition, are 2,900 ± scientists and engineers enough to take care of the teaching, research, and raw materials needs of the nation?

National Academy *Continued from page 7*

the Institute has moved ahead experimenting and testing to find its place of greatest service. Sparked by elected and staff officers of ability and vision the AGI has achieved much. Whether it can realize its full potentialities is for the future to determine. That there is much to do few will dispute.

The National Academy of Sciences-National Research Council is an organization of the scientists of America, for them to use as they may and will for the furtherance of science and its application to human welfare. By the avowal of purpose in its articles of organization the AGI in its area of interest is in no wise different. The operation of the Institute within the framework of the Academy-Research Council is altogether fitting.

We look to the AGI for service to the geological sciences; for efficient operation as a mechanism for concerted action by geological scientists; for imagination, flexibility, and bold initiative in meeting changing needs and circumstances; for thoughtful and constructive criticism by scientists of scientists and their institutions. But most of all we look to the AGI, as to the other institutions of science in these fateful days, for leadership—responsible, creative, humble leadership that can carry science forward not as a technique for material improvement, though it is surely that, but as an ennobling, enriching, demanding exercise of the highest human faculties, to be used, in the best of all possible worlds, for the betterment of the human race and the glory of the Creator of it all.

The highest responsibility and most difficult task of the Academy-Research Council is that of leadership. Leadership can come only from individuals, but the institutions of their creation can provide helpful machinery, the necessary atmosphere, and ready access to one another. Therein lies the deepest challenge to the American Geological Institute. By its response to that challenge as the years go by will its ultimate value to science, to the nation, and to humanity be measured.

Geologic Data Sheets

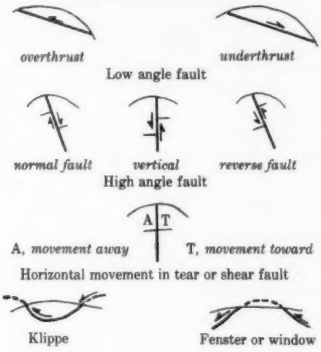
This is the third of a series of three geologic data sheets published by the AGI. The first two appeared in the Geological Newsletter during the first half of 1956. These data sheets cover symbols commonly used in geologic field mapping. They are now available as a set of three (3) for $0.25 from the American Geological Institute, 2101 Constitution Avenue, N. W., Washington. To colleges and universities a special price of $0.15 per set will apply when data sheets sets are purchased in quantities of 10 or more.

AGI 3

GEOLOGIC MAP SYMBOLS-3

A data sheet listing map symbols commonly used in the preparation of geologic maps, compiled principally from published lists of the U. S. Geological Survey, Map Symbol Committee and recently published geologic maps.

CROSS SECTIONS



OIL & GAS WELLS

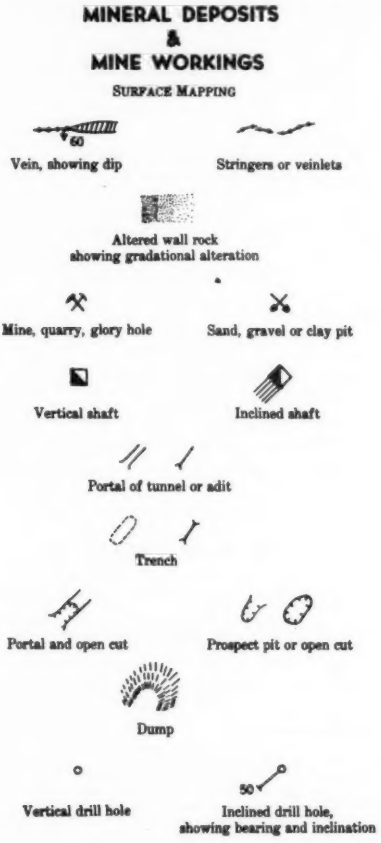
Well location
Dry hole
Oil well
Oil and gas well
Gas well
Oil well, with show of gas
Gas well, with show of oil
Dry hole, with show of oil
Dry hole, with show of gas
Dry hole, with show of oil and gas
Abandoned oil well
Abandoned gas well
Abandoned oil and gas well
Abandoned oil well, with show of gas
Abandoned gas well, with show of oil
Shut in well

Additional copies of this data sheet may be obtained from the AMERICAN GEOLOGICAL INSTITUTE, Cost $0.10.

A Survey of Geology-Geophysics Students in 1955-56
and of
Available Scholarships, Fellowships, Assistantships, Etc.

Published by
AMERICAN GEOLOGICAL INSTITUTE
2101 Constitution Ave., N.W.
Washington 25, D. C.

AGI Report 12
Cost $0.50



SIRS:

Would very much appreciate your making the following change of address in your subscription roles for GEOTIMES. Alan Ripple Johnston, 12905 So. Van Ness Ave., Gardena, Calif. (new address). Didn't fully appreciate the interest GEOTIMES held for me until I stopped receiving it. Keep up the fine work.

Yours very truly,
A. R. JOHNSTON

DEAR EDITOR:

As a member of A.I.M.E. I should like very much to receive a personal copy of GEOTIMES, even though we already receive a copy which has to be filed at this office.

Thanking you in advance for your courtesy and cooperation.

Truly yours,
N. DE VOOGD
La Luz Mines Ltd.
Nicaragua, C. A.

DEAR EDITOR:

As a member of the GSA I gather that I am entitled to receive the GEOTIMES at no cost. Many thanks for your letter of Nov. 28.

Sincerely,
T. H. MOORE
Cartier Mining Co., Ltd.
Montreal, Quebec

GENTLEMEN:

I have been a member of the SEG for the past two years but have never received any copies of your magazine. Please put my name on your mailing list to receive future issues of GEOTIMES.

Yours truly,
LEONARD S. ROLNICK
Fort Worth, Texas

DEAR SIRS:

I have recently been shown by a colleague a copy of your publication "GEOTIMES." I see that it is distributed to members of member societies as a part of their societies membership. As I am a member of the Mineralogical Society of America I am wondering whether it is possible for my name to be put on your mailing list?

Yours sincerely,
R. A. HOWIE
Univ. of Manchester
Manchester, England

DEAR SIR:

I have been a member of the MSA for several years but have not received your publication, GEOTIMES. I would like to be placed on your mailing list. Thank you for your consideration of this matter.

Very truly yours,
HARRY M. DAHL
AEC Camp
Thoreau, New Mexico

DEAR SIRS:

As a fellow of the GSA, a member of the AAPG and the SEPM, I should appreciate it if you would put my name on the mailing list for GEOTIMES.

Very truly yours,
H. H. RENZ
Caracas, Venezuela

DEAR SIRS:

As a member of the Black Hills Section, AIME I would like to be placed on your mailing list to receive GEOTIMES.

Sincerely,
TED M. RIZZI
Lead, South Dakota

DEAR SIRS:

As I am a member of both the GSA and the AAPG may I request that my name be added to the regular mailing list for GEOTIMES.

Thank you in advance.

Very truly yours,
H. GREINER
Univ. of New Brunswick
Fredericton, N. B.

EDITOR'S NOTE: *Above is a sampling of one week's requests for* GEOTIMES. GEOTIMES *goes to members of the member societies of the American Geological Institute as a part of the member societies' membership. Our distribution has risen from 16,000 in July 1956 to nearly 18,000 in January 1957. We expect to top 20,000 during 1957.*

HOWARD A. MEYERHOFF has been reelected a Commissioner of the Scientific Manpower Commission for a three year term beginning January 1, 1957, representing the AGI. John C. Frye is AGI's other representative.

ANTARCTICA IN THE INTERNATIONAL GEOPHYSICAL YEAR, collection of 16 papers from Symposium on the Antarctic, April 1956, 140 pp., plus map of Antarctic, published by American Geophysical Union, 1515 Massachusetts Ave., N. W., Washington 5, D. C., price $6.00 plus postage, quantity discounts.

The volume has an outstanding group of contributing authors. The Introduction by L. M. Gould, is followed by papers grouped as General, Geographic and Meteorologic, Geological and Structural, Upper Atmosphere Physics, and Flora and Fauna. In the section on geology, William E. Davies summarizes available knowledge of the stratigraphy and structure; Duncan Stewart summarizes the writings of over 100 contributions to the literature on petrology, petrography and mineralogy of Antartica; and Maurice Ewing and Bruce C. Heezen discuss the status of submarine geology off the coast of Antarctica. The volume is a significant reference book on Antarctica.

SOUTHERN OKLAHOMA CROSS SECTION, four cross sections, Ardmore Geological Society, Box 958, Ardmore, Okla., $3.00 per section, $10.00 per set.

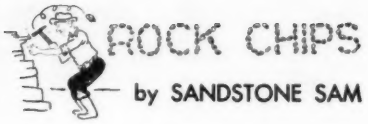
An east-west and three north-south geological cross sections across southern Oklahoma, 1" = 4000' horizontal and 1" = 400' vertical. Also available in reduced scale at slightly lower price.

SUBSURFACE STRATIGRAPHY OF THE PRE-NIOBRARA FORMATIONS OF WYOMING, 1956, 90 page text and 8 subsurface correlation charts, Wyoming Geological Association, P. O. Box 545, Casper, Wyoming, $8.00.

This is the first part of a compendium on Wyoming stratigraphy to be compiled and published by the Association.

GUIDEBOOKS FOR (GSA) FIELD TRIPS, MINNEAPOLIS MEETING 1956, edited by G. M. Schwartz with S. S. Goldich, R. W. Marsden, Robert E. Sloan, Herbert E. Wright and others, 107 pp., 38 figs., 7 pls., 1956, Geological Society of America, 419 West 117 St., New York 27, N. Y., $4.00.

This guidebook includes the itineraries and background information for three field excursions conducted in connection with the GSA meetings, November 1956. These trips were (1) Pre Cambrian Geology of Northeastern Minnesota, (2) Lower Paleozoic Stratigraphy of the Upper Mississippi Valley and (3) Glacial Geology of East Minnesota. For one interested in any of these three phases of Minnesota geology, this guidebook will prove most interesting.



On a Devonian horn coral display in an Atlanta antique shop a sign reads "This lot of stones is about 100,000 years old—long before the Civil War."

Georgia Mineral Newsletter

* * * *

"Geology is by tradition an agnostic science."

Felix Chayes

* * * *

"Only in America do minor scientists continue to insist that water dowsing is a hoax and a superstition."

Kenneth Roberts

SsS: Could he mean us?

* * * *

SsS read in the KGS Bulletin, "Everyone conducted themselves as geologists and gentlemen (so what is incompatible about that?)."

* * * *

"There is almost nowhere where some oil is not found," so saith a senior geology major.

PETROGRAPHIC MODAL ANALYSIS, an elementary statistical appraisal by Felix Chayes, pp 113, 1956, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y., $5.50.

To anyone who has twiddled the dials of a counting stage in a petrographic study to determine the modal composition of a rock, this book will supply many answers. First of all it provides the geometric basis for modal analysis. It discusses the various techniques developed for the purpose and the principles behind them. The statistical aspects of modal analyses are dealt with in a manner understandable to the non-statistically trained geologist, and the sources and limits of error are discussed.

GEOLOGY AND OURSELVES, by F. H. Edmunds, pp 254, 1956, Philosophical Library, 15 E. 40th St., New York 16, N. Y., $10.

This book is written to appeal to the layman interested in learning of geology and its influence on the world around us. Since the author has for many years been a member of the Geological Survey of Great Britain, he naturally confines much of his description to areas in the British Isles. The price will undoubtedly deter its wide distribution.

NSF Research Grants

The Earth Sciences Program of the National Science Foundation is now receiving proposals for research grants that will be made in June and July, 1957. Cutoff date for the receipt of applications in the Foundation is February 8, 1957. There are no formal application blanks, but a Foundation pamphlet describes the method of making application and outlines information needed in a proposal. This pamphlet may be obtained by writing directly to the NATIONAL SCIENCE FOUNDATION, WASHINGTON 25, D. C., ATTENTION: EARTH SCIENCES PROGRAM.

Graduate Aid

Wisconsin

Graduate assistantships for the year 1957-58 will be awarded to science students of talent and originality by the University of Wisconsin Alumni Research Foundation. The awards carry a stipend of $2,160 for the period July 1, 1957 to June 30, 1958 and exemption from nonresident tuition. Recipients will be enrolled in the Graduate School and will be free to choose areas of research toward graduate degrees.

Initiative for nominating candidates for the awards rests with faculty members who may receive application forms by writing to the GRADUATE SCHOOL, UNIVERSITY OF WISCONSIN. Closing date for applications is February 15, 1956.

Texas A & M

The Department of Oceanography and Meteorology has announced the availability of graduate fellowships and research assistantships to qualified graduates in physics, chemistry, geology, meteorology, biology and engineering for 1957-58. Included are three fellowships with stipends ranging from $1,800 to $3,000 and research assistantships ranging from $1,800 to $2,250 for 12 months. The awards offer a wide scope of possibilities for research in oceanography and meteorology to recipients who will be working toward advanced degrees in these fields. Application forms may be obtained from the Head of the DEPARTMENT OF OCEANOGRAPHY AND METEOROLOGY, THE A & M COLLEGE OF TEXAS, COLLEGE STATION, TEXAS, and must be filed by March 30, 1957.

Geology in a nutshell . . .

GEOLOGICAL ABSTRACTS

published by

GEOLOGICAL SOCIETY OF AMERICA

for the member societies of the

AMERICAN GEOLOGICAL INSTITUTE

Abstracts the following publications in the earth sciences

AAPG Bulletin
GSA Bulletin
American Mineralogist
Journal of Sedimentary Petrology
Journal of Geology
American Journal of Science
Economic Geology
Geophysics
Seismological Society Bulletin
AGU Transactions
Journal of Paleontology
Micropaleontology
Bulletin of American Paleontology
Cushman Foundation for Foram Res.
SGE Compass
Journal of Geological Education
ASP Photogrammetric Engineering
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NEW *Ideas Products Services*

Petron a newly developed canned blasting agent has been designed especially for seismic prospecting. This product cannot be detonated by blasting caps, detonating fuse, flame, nor impact, but it is detonated by use of a suitable priming charge. The 2 and 2.5 inch diameter one pound cans can be quickly screwed together into rigid columns. Because of its detonating properties it may be used in loading holes where gelatin cannot be used and the rigidity of the columns frequently obviates use of casing. For more information write **Technical Service Section GT, Explosives Division, Atlas Powder Co., Wilmington 99, Del.**

The Island of Cuba will be mapped by aerial photogrammetry under a contract negotiated recently between the **Aero Service Corporation** of Philadelphia and the Cuban Government. An area of about 45,000 square miles is involved and a series of 320 topographic map sheets in six colors, scale 1:50,000, contour interval 10 meters, is scheduled for delivery from late 1958 into 1959. Primary control for the aerial photography has been established by the Inter American Geodetic Survey and the Instituto Cubano de Cartografia e Cadastro. This project should prove a tremendous stimulus to exploration for mineral resources in Cuba.

X-ray Spectrographic Chart showing characteristic secondary X-ray beams for elements from Magnesium (Atomic No. 12) to Californium (No. 98) measures 17 x 22 inches and is suitable for wall display. Helpful in understanding theory and application of X-ray Spectrograph and in handling actual problems. Available free on request from **Instruments Division, Section G, North American Philips Co., 750 South Fulton Ave., Mt. Vernon, N. Y.**

Geo-Physical Globes, showing world's terrain in three-dimensional relief, are produced in two sizes. A king-size 6 foot globe cast of rubber and inflatable, has a graduated scale for vertical exaggeration and is hand painted to order. It is designed for use by libraries, museums and for other display purposes. A 12-inch counterpart of the 6 foot globe is moulded in two rigid plastic hemispheres. This globe for use in homes, schools and offices is priced well within the reach of all. Additional information may be obtained by writing **Geo-Physical Maps Inc., 521 Fifth Ave., New York City.**

Hunting Technical and Exploration Services, Ltd. is the name of a new Canadian firm organized to provide service in the exploration and development of natural resources throughout the world. The organization will be staffed to handle problems relating to renewable resources as well as mineral resources and will be staffed by geologists, geophysicists, foresters, hydrologists, agriculturalists, and engineers of various specialties. More information on this new member of the Hunting group of companies may be had by addressing the company at **1450 O'Conner Drive, Toronto, Ontario.**

GeOde

"How do you like the GeoTimes?",
I asked the GeoProf.
He didn't have to hesitate
But promptly sounded off:
"When first I heard the hybrid word,
Now title of the mag,
It made me wince, it made me cringe,
It made me want to gag.
But on reconsideration
I have come to realize
That a classic education
Shouldn't make me close my eyes
To the present situation,
In which barbarisms spread
With the insidious implication
That the classicist is dead.
'If you can't lick 'em, join 'em',
My GeoStudents hoot.
'From now on let's all call it
The GeoInstitute.'"

ARTHUR N. DUSENBURY, JR.

Civil Service Exam.

The Civil Service Commission has announced examinations for geologists at grades GS 5 ($3,670) and GS 7 ($4,525). Closing date January 11, 1957 for applications. The written examination will be held February 11, 1957. Request Announcement No. 85B at your nearest first class Post Office or Civil Service Commission regional office.

It is the U. S. Government, not GEOTIMES that causes this notice to appear so late. We were in press for December when the announcement reached us.

E. J. LONGYEAR COMPANY
Geological and Mining Consultants
MINERAL EXPLORATION AND APPRAISALS — PHOTOGEOLOGY

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Colorado Bldg.	Denver 2, Colo.
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POSITIONS WANTED	$0.25	—	—	— per line
VACANCIES	2.00	1.35	—	— per line
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ONE INCH BOX	25.00	22.50	21.25	20.00

Min. charge $1.00. AGI box numbers $1.00 extra. No discounts. All classified advertisers will be billed, do not send advanced payments. **Address all communications to American Geological Institute, 2101 Constitution Ave., Wash. 25, D. C.**

POSITIONS WANTED

BOX 250. GEOPHYSICIST, M.S., wants West coast or Rocky Mountain post. Offers eight years in research, ground-water, and base metal exploration. Assures confidential treatment of your inquiries.

BOX 242. GEOLOGIST, 35, B.S., married, 5 years major company experience in northern New Mexico and West Texas including administrative, seismic and some surface work. Desires to relocate. Excellent references.

BOX 254. GEOLOGIST, Ph.D, specialist in Economic Geology, Petrology, Mineralogy, presently Visiting Professor, wants similar position for the academic year 1957-58, or permanent affiliation with a serious institution of learning. Experienced in teaching, widely travelled, familiar with geologic literature and supporting sciences. Will also consider research or exploration. Excellent references. Available June 1957.

BOX 255. GEOLOGIST, 25, Ph.D. Desires research-teaching position in quantitative geomorphology and sedimentation. Some teaching and industrial experience.

Ph.D. Desires teaching position coll. or univ. 14 yrs. experience US and foreign. Write c/o Batta, 73-01 41st Avenue, Woodside 77, N. Y.

BOX 256. Invertebrate fossil preparator desires curatorial or field position. 10 years field experience, knowledge of stratigraphy and taxonomy, and capable of lecturing in paleontology as well as collect and prepare study and exhibit material. Has collected in all classic American and foreign localities and is free to spend summers in field work. Publications in paleoecology, etc. Salary secondary.

SMALL COLLEGE teaching position in geology and mathematics desired. MA Minnesota, 5 years exploration experience, 31, E. Keith Swanson, 1115 Greene Street, Boone, Iowa.

BOX 257. GEOLOGIST, Ph.D., 1955. Age 29, married. Desires teaching position with research facilities. Fields of interest: geochemistry, petrogenesis, and mineralogy. Excellent academic record with strong background in chemistry, physics, and mathematics.

BOX 258. Summer employment wanted by engineering geologist, 35, ScD., to teach summer school, field camp or do geological field work for a company. 9 years of teaching experience at a large university in USA, 7 years of field experience mostly overseas; own slide collection, publications.

VACANCIES

MICHIGAN STATE UNIVERSITY, East Lansing, Michigan, has an opening beginning September, 1956, for a young man wishing to develop geophysics and hydrology. Salary and rank dependent on qualifications. Write: B. T. Sandefur, Dept. of Geology.

DARTMOUTH COLLEGE, Hanover, N. H. Glacial geologist-geomorphologist for an opening in September of 1957. Ph.D. required. Preference to men 32 or younger. Salary and rank dependent on qualifications.

TRINITY COLLEGE will need a permanent Instructor in geology, beginning Sept., 1957, to teach structural geology, geology of North America, introductory geology, and two other one-term courses. Ph.D. degree requirements must be completed or nearly completed. Salary dependent upon qualifications. Ample time and fine location for research in structural and glacial geology. Summers may be spent as desired. Write: Chairman, Dept. of Geology, Trinity College, Hartford, Conn.

MONTANA STATE UNIVERSITY, Missoula, Montana, Ph.D. to teach optical mineralogy, petrography, also general geology and some field methods, September 1957. Write Chairman, Dept. of Geology.

WANTED: Experienced field geologists and Tertiary Paleontologists for work in Panama. Knowledge of Spanish desirable. State full qualifications and expected salary. Replies confidential. Contact Edward A. Koester, 604 Orpheum Building, Wichita 2, Kansas.

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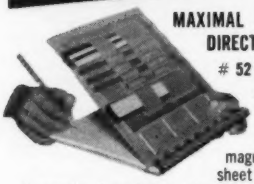

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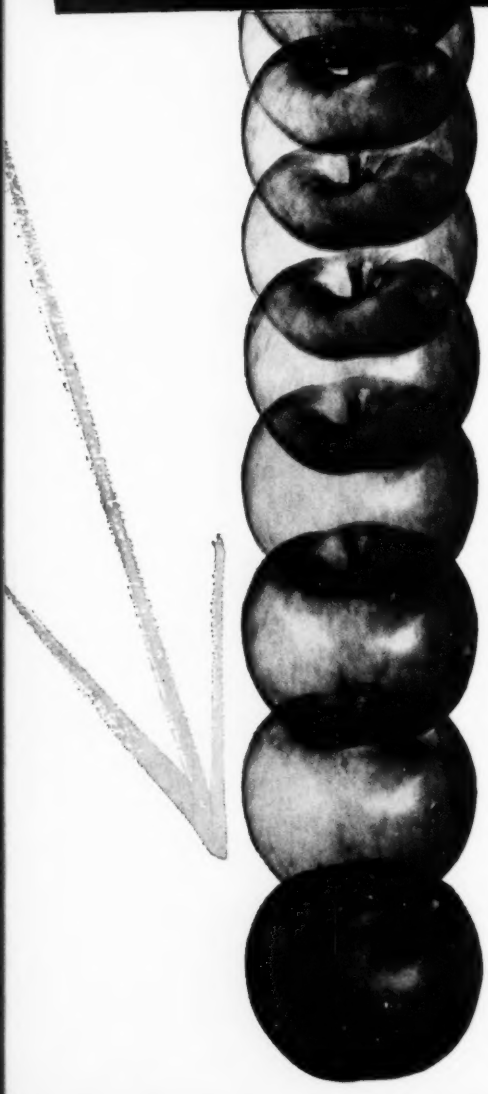

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